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RECENT USSR TRENDS IN WORK ON SYNTHETIC PLANT-GROWTH REGULATORS

[Numbers in parentheses refer to appended sources.]

Recent trends in the field of synthetic plant-growth regulators are best illustrated by the discussions which took place at a meeting called by the Institute of Plant Physiology imeni K. A. Timiryazov, Academy of Sciences USSR, and held on 21-23 December 1953. At this meeting a report was given on the work being done in the field of plant growth regulators by the Laboratory of Stimulation and Retardation [of Plant Functions], Institute of Plant Physiology, Academy of Sciences USSR. The fact was emphasized that the effect of synthetic growth regulators on the plant is always toxic, regardless of whether the reaction is one of growth stimulation or inhibition.

Stress was laid on application of growth regulators for the stimulation of root development in rootless saplings, retardation of sprouting in potatoes being stored, stimulation of sprouting in potatoes planted in dry southern regions, and suitable treatment of cotton plants in the fall.

Reports presented by the chemists who participated in the meeting (A. P. Terent'yev, Corresponding Member of the Academy of Sciences USSR; and N. H. Mel'nikov, Doctor of Chemical Science) indicated that "Soviet chemists have not only synthesized completely new substances [that are active as plant-growth regulators], but have also developed the technology of the industrial synthesis of many of them." A resolution passed by the meeting recommended, among other things, that new highly active plant-growth regulators be synthesized, that methods for the industrial synthesis of compounds of this class be developed, and that methods be devised for the quantitative and qualitative determination of chemical substances that are contained in plants and exert a pronounced physiological activity (i.e., growth regulators). (1)

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In connection with the above reference to Terent'yev's work, it is of interest to note that Terent'yev is regarded as a specialist in the field of indole derivatives.(2)

In an exhaustive review of the subject of growth regulators published by N. N. Mel'nikov, his own work on indole derivatives and phenoxyalkylcarboxylic acids is mentioned, but no reference is made to Terent'yev's work. The use of calcium cyanamide as a defoliant for cotton plants in the USSR is mentioned. However, it appears from the author's discussion and his bibliography that this application of calcium cyanamide is based on work carried on outside the USSR.

Although Mel'nikov's review is based principally on work outside the USSR (his bibliography lists 168 Russian references as compared with 517 non-Russian works), the review indicates that a considerable amount of research on syntheses of plant-growth regulators is being conducted in the USSR.(3)

SOURCES

1. K. Ye. Ovcharov, Theory and Practice of the Application of Plant-Growth Stimulants and Herbicides, Vestnik Akademii Nauk, Vol 24, No 3, 1954, pp 83-86
2. Election of Members and Corresponding Members of the Academy of Sciences USSR, Izvestiya Akademii Nauk, Otdeleniye Khimicheskikh Nauk, No 1, 1954, pp 184-205
3. N. N. Mel'nikov, Yu. A. Baskakov, Uspekhi Khimii, Vol 23, No 2, 1954, pp 142-198

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